U. S. Railroad Retirement Board

Common Information Technology Requirements Vision

Technology Architecture

In Support of the

Railroad Retirement Board's

Business Strategies

July 24, 2001

Version 1.0

Common Requirements Vision
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Introduction

As a preliminary step in defining the Railroad Retirement Board's (RRB) Enterprise Wide Technical Architecture (EWTA), the RRB adopted the *Federal Enterprise Architecture Framework* (FEAF) prescribed by the Federal CIO Council's Federal Architecture Working Group. This framework provides a structure for the RRB's specific architectural components and associated standards. This document begins to add RRB-specific detail to this framework.

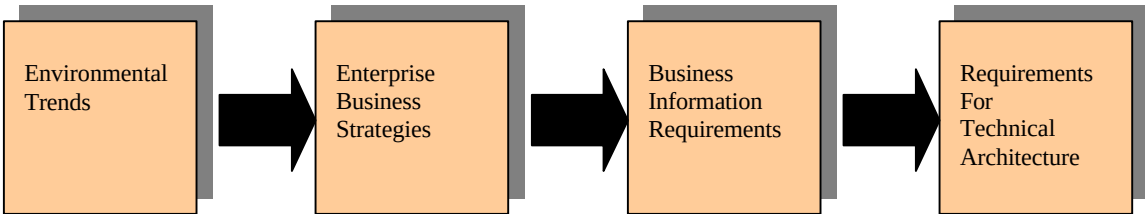
A ***Common Requirements Vision*** (CRV) begins the process by defining a set of common and cohesive enterprise-level requirements to achieve the agency's business strategies. It provides a common language and process for linking the *RRB Strategic Plan* and the *Strategic Information Resource Management Plan.* The *Strategic Plan* provides the goal for all IT activities by stating that the RRB will use ***"technology and automation to foster fundamental changes that improve the way we do business."*** The strategy adopted by the ADP Steering Committee in the *Strategic Information Resources Management Plan* outlines a set of objectives to accomplish this goal.

The CRV also provides a vehicle for analyzing the impact of changes to business strategy. Simply put, a Common Requirements Vision defines WHAT is required, not HOW it will be accomplished.

Components of the Common Requirements Vision

The CRV is composed of a series of four linked requirement type phases, *Environmental Trends, Enterprise Business Strategies, Business Information Requirements, and Requirements for Technical Architecture.*

Common Requirements Vision Phases



- **Environmental trends** identify influencing internal and external environmental trends.
- **Enterprise Business Strategies** identify the key driving (most important) business strategies to the enterprise.
- **Business Information Requirements** identify the information required by business decision makers to satisfy the enterprise business strategies.
- **Requirements for Technical Architecture** translate the business information requirements into requirements for the technical architecture (i.e. Conceptual Architecture Principles and Domain Architecture Principles).

The phases are linked because each phase drives the content of the next. As a whole, the business goals and objectives in the CRV drive the requirements of the agency's Conceptual and subsequent Domain Architectures. In brief, ***Conceptual Architecture*** is a logically consistent set of principles, derived from the business requirements that will be used to:

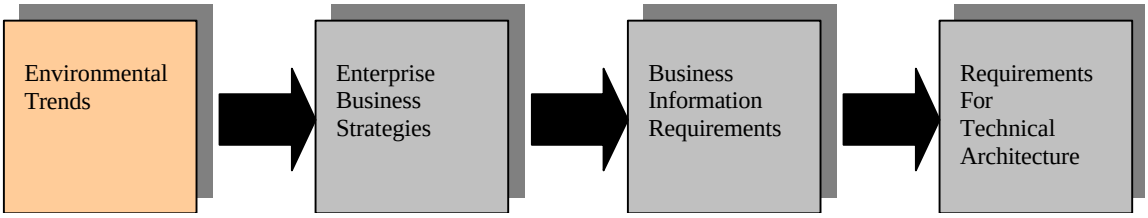
- Guide the engineering of our information systems and technology, and
- Enable rapid change in business processes and the applications that enable them.

The RRB's Conceptual Architecture follows the CRV.

Common Requirements Vision Statement

Based upon the process defined in this document, linking the business strategies to business information requirements, the following Common IT Requirements Vision Statement has been developed to guide RRB decision-making with respect to information technology investments:

> *"We will invest in technology to create seamless linkages connecting business and services to serve our customers when, where and how they want to be served. We will create a unified and adaptable technology environment in support of business operational efficiency, customer dependency and cost containment. Our new technology environment will provide integrated access to networks, applications and data anytime, anyplace, anywhere."*



Environmental Trends

The examination of environmental trends on the business of the RRB is an essential starting point in developing business strategies. Environmental trends identify the internal and external forces impacting the RRB. Internal trends can involve matters such as human capital or organizational issues. External trends can involve matters such as competition, globalization, regulatory/legislative changes, needs of our customers, or changes in technology.

The examination of environmental trends on the business of the RRB is an essential starting point in developing business strategies. Environmental trends identify the internal and external forces impacting the RRB. Internal trends can involve, but are not limited to, human capital or be organizational. External trends can involve competition, globalization, regulatory/legislative, our customers, and technologies. Essentially, the essence of these trends can be presented in a single statement:

The RRB must be prepared to support anytime, anywhere and anyhow computing.

Below is a listing of some of the major environmental trends confronting the RRB in the near and long term that support this statement.

- **Budgets** – Reduction of RRB budgets in real dollars. The agency must continue to plan to offset smaller budgets with technology investments and more highly trained and versatile staff. Budget constraints require us to carefully weigh the relative values of all our business initiatives so we pursue first those best aligned with our mission and performance measures. The increasing cost of travel recently caused the Board to require the exploration of distance learning for field personnel in place of a National Meeting.

- **Security Practices** - The 1999 Government Information Security Reform Act mandates annual program reviews and audits of information security practices by agency inspectors general. The Office of Management and Budget issued guidance on Jan. 16, 2001 on how to implement the law. The law requires agencies to submit the first round of their security plans to the Office of Management and Budget by September 2001, and to have programs in place by October 2002. OMB has put on hold funding requests for several new and existing systems in which agencies have yet to show they have included information security as integral to the system's architecture.

- **Reduce erroneous payments** – The Administration has set a goal for agencies to reduce the number of erroneous payments in the programs they administer.

- **Expand use of on-line procurement and services** – The Administration has set a goal for agencies to increase the use of the Internet for service and procurement.

- **Improved financial management** – The Federal Government has been working to improve financial management systems for several years through a variety of initiatives, such as the Joint Financial Management Improvement Program (JFMIP) Core Financial System Requirements and the U.S. Government Standard General Ledger, which apply to all departments and agencies in the executive branch of the Federal Government. The Chief Financial Officers Act of 1990, the Government Management Reform Act of 1994, and the Federal Financial Management Improvement Act of 1996 require enhanced financial systems, audited financial statements, and improved planning.

- **Declining beneficiary population** – The RRB will be servicing a declining beneficiary population. The number of beneficiaries in pay status is expected to decline by 13 percent between 2000 and 2005. The cumulative decline is projected to be 21 percent by 2010. RRB systems design needs to account for varying and shifting uses of storage capacity and alternative system delivery methods.

- **Declining active employee base** – The RRB will be servicing a declining active employment base in the railroad industry. The number of active employees is expected to decline by 11 percent between 2000 and 2005. The cumulative decline is projected to be 22 percent by 2010. RRB systems design needs to account for varying and shifting uses of storage capacity and alternative system delivery methods.

- **e-Government –** The Government Paperwork Elimination Act, provides for Federal agencies, by October 21, 2003, to give persons who are required to maintain, submit, or disclose information the option of doing so electronically as a substitute for paper, and to use electronic authentication (electronic signature) methods to verify the identity of the sender and the integrity of electronic content. The CIO Council has established an E-Government Committee initiative to set policies and to assist Federal agencies in implementing electronic government. E-government will also lead to more electronic coordination with other governmental entities as the trend to one-stop shopping for governmental services increases.

- **Work-at-Home Initiative** – The Office of Personnel Management (OPM) recently reminded agencies that recent legislation requires each agency to have telecommuting policies in place not later than April 2, 2001. The stated OPM goal is that the policy is to cover 25% of the workforce by the end of this fiscal year, and 50% by the end of fiscal year 2002.

- **e-Learning (web conferencing)** – With the dispersed RRB workforce in 53 locations, and growing work-at-home workforce, alternative means of communicating instructional materials must be found.

- **Declining client base of IDMS** – The past decade has seen a significant drop-off in the number of clients nationwide for IDMS. The RRB has responded by switching to the CICS/VSAM version of FFS in 1995 due to a drop in FFS support, and has decided to move to the DB2 alternative to the IDMS version of its contractor-supplied payroll/personnel system. However, the RRB's major legacy benefit payment systems are stored on and accessed by IDMS. It will become increasingly difficult in the future to procure software products compatible with IDMS and to hire program analysts with an IDMS background. In January 2000, Tesseract announced that it would drop support of the IDMS data base platform 90 days after the availability of Tesseract's 2003 release (about September 2003).

- **Potential legislative changes** – Major legislation affecting the railroad retirement system passed the U. S. House of Representatives in 2000. The legislation has been reintroduced into this session of Congress. Passage will require a significant programming effort.

- **Public Key Cryptography** – To ensure that adequate attention is given to implementation of the supporting security services and the requisite infrastructure to provide e-Government services needed, the GITS Board has directed that the Federal PKI (FPKI) Steering Committee take on the task of providing Government-wide guidance and coordination of Federal activities necessary to implement a public key infrastructure. The FPKI Steering Committee coordinates, oversees, monitors, implements and reports on the development of a public key infrastructure to support secure electronic commerce and electronic messaging as well as other Federal agency programs requiring the use of public key cryptography.

- **Security, Privacy and Critical Infrastructure** – The Federal government has a crucial responsibility to maintain the security of its systems, the privacy of its citizens, and its critical infrastructure. The Security, Privacy and Critical Infrastructure Committee of the CIO Council has been established ensure implementation of security practices within the Federal Government that gain public confidence and protect government services, privacy, and sensitive information.

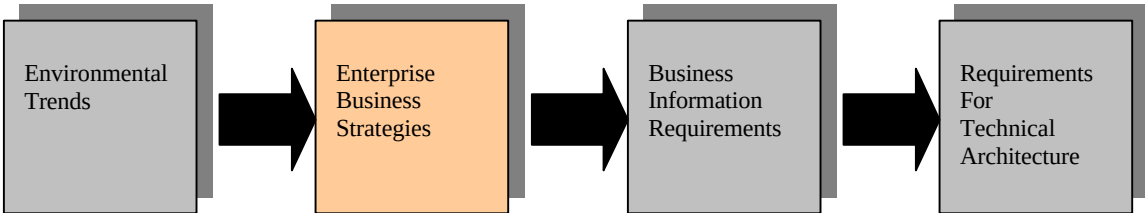
- **Pervasive Computing** – Traditionally, technology has been used in a highly visible way to support discrete business activities, e.g. in the office to access in-house applications. However, customers and employees will increasingly want to use pervasive devices (e.g. palm pilots, smart appliances) and pervasive networks (e.g. wireless) to access the RRB's systems. Applications will slowly become "network-centric" services with multiple (sometimes simultaneous) user "faces". As computing become more pervasive and integrated into everyday life, customers will focus more on services than applications.

- **Competitive pressures** – We must continually improve services to anticipate customer needs and expectations and to maintain high customer satisfaction. This reflects society's trend to ever-expanding services such as 24x7 service availability in various modes, including Internet, telephone, fax, and e-mail. This will place demands on our resources to provide customer support, to assess satisfaction, and to adjust to customer feedback.

- **Maturing workforce** – By Fiscal Year 2006, 33 percent of the RRB's employees will be eligible for regular retirement. This is in contrast to the 4 percent who were eligible to for regular retirement in fiscal year 1997. The RRB must plan to replace or supplement the skilled workforce who will leave, possibly through the increased use of Information Technologies. It will be equally important that the skill levels of the RRB personnel that remain be brought up to the level of today's technologies. The RRB will need to do a better job of recruiting and retaining employees in a very competitive employment market. This also impacts job design, classification, the range of knowledge, skills and abilities required, and job satisfaction. Success must be achieved within the purview of labor-management agreements and the constraints of OPM rules that limit our options.

- **Increase A-76 competitions** – The Administration has set a goal for agencies to increase the use of private sector competition for in-house commercial activities. The identified range of IT functions identified for inclusion in this review run from facility management to equipment installation and maintenance.

- **Increasing demands for accountability of government programs.**

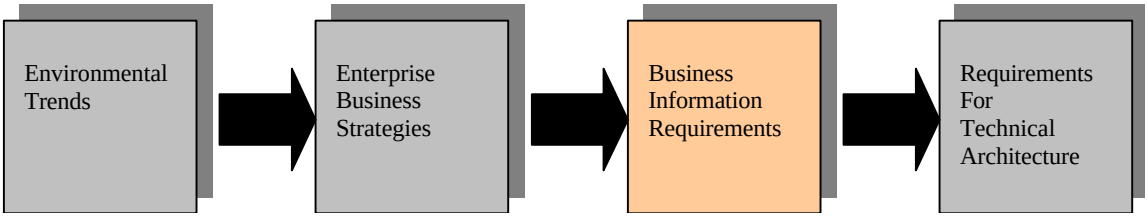


Enterprise Business Strategies

Enterprise Business Strategies are derived from the RRB's Mission statement, Strategic Plan, Strategic Information Resource Management Plan, and environmental trends. They represent the business of the RRB at a high level. It establishes the principles that guide the many detailed planning and implementation efforts that combine to realize the strategy. Business strategy is developed by those organizations in the RRB with specific business or program responsibilities.

Not all strategies drive the enterprise's business; only those with important enterprise-level business impact. The architecture that will be developed, therefore, is defined at a fairly high level of abstraction, making it more adaptable to frequent changes in business processes and supporting technologies.

RRB Enterprise Business Strategies		
Category	**Strategy**	**Description**
Stewardship	S-1	Safeguard our customers' trust funds.
	S-2	Provide the most effective and efficient alignment of business and information technology resources to the mission.
	S-3	Use, build and maintain the most professional, productive, innovative and diverse workforce.
	S-4	Use outside sources and partnerships, when appropriate, to best accomplish our mission.
Customer Services	CS-1	Pay benefits accurately and timely.
	CS-2	Provide a range of choices in service delivery methods.
	CS-3	Deliver service at the point-of-contact ("one and done").
	CS-4	Provide relevant, timely and accurate information and products that are easy to understand.
	CS-5	Provide a level of service that meets or exceeds what customers can receive from other governmental and private entities.



Business Information Technology Requirements

The business information requirements are derived from the Enterprise Business Strategies. Business information technology requirements are a high level definition of the types of information required by the lines of business to better manage their business activities to meet the strategies. In order to support our enterprise business strategies, the business information technology requirements need to answer the following questions:

- What information is needed?
- Who needs it?
- When (how often) is it needed?
- Where does it come from?

Business Information Technology Requirement 1: Pay and adjust accurately and timely retirement/survivor/disability/Medicare and sickness/unemployment insurance benefits to railroad workers and their families.

Business Information Technology Requirement 2: Further reduce the quantity and amount of erroneous retirement/survivor and sickness/unemployment insurance benefit payments.

Business Information Technology Requirement 3: Provide customers the option of submitting, obtaining, and disclosing information electronically (GPEA) where feasible and cost effective.

Business Information Technology Requirement 4: Provide an efficient and effective reporting system for railroad employers.

Business Information Technology Requirement 5: Require all RRB information assets that support business processes be secure.

Business Information Technology Requirement 6: Project, collect, record, and invest trust fund assets through an effective and efficient trust fund management program.

Business Information Technology Requirement 7: Provide that IT support of RRB's business processes be efficient (cost measurement) and effective (time measurement).

Business Information Technology Requirement 8: Design applications that can be easily implemented and adaptable to multiple and changing business and technology needs.

Business Information Technology Requirement 9: Apply effective IT support to program integrity activities.

Business Information Technology Requirement 10: Provide for modern, integrated information exchange and document management that combines the best features of electronic mail, transaction processing, and collaborative document management and access for use by RRB customers and employees.

Business Information Technology Requirement 11: Enhance administrative functions to increase efficiency by leveraging legacy software with improved data entry and reporting capabilities, or by replacing existing components with off-the-shelf software, if cost beneficial.

Business Information Technology Requirement 12: Increase the use of A-76 competition for in-house commercial activities as needed, when it's the best business solution.

Business Information Technology Requirement 13: Replace paper outputs and reports with electronic alternatives. However, retain the generation of paper letters, notices, reports, etc. as an option for some users.

Business Information Technology Requirement 14: Allow data to be collected and validated once, and re-evaluated only for special circumstances.

Business Information Technology Requirement 15: Design processes and supporting information technology to enable efficient and effective workflows in both headquarters and the Field Offices.

Business Information Technology Requirement 16: Design processes and supporting information technology to enable efficient and effective workflows between the RRB and other Federal agencies (e.g. SSA and Treasury).

Business Information Technology Requirement 17: Design processes and supporting information technology to enable efficient and effective workflows between the RRB and contractors.

Business Information Technology Requirement 18: Design processes and supporting information technology to enable efficient and effective workflows between the RRB and railroad employers.

Business Information Technology Requirement 19: Reduce and eliminate the duplicate, and often conflicting, demographic information about employers, employees, annuitants, and claimants.

Business Information Technology Requirement 20: The RRB needs to account for benefits to assure accurate accounting by component for benefit payments, returned payments, debt collections, other credits, and transfers between accounts and agencies.

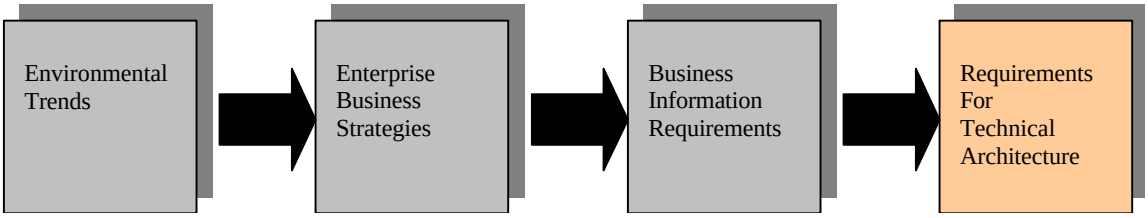
Business Information Technology Requirement 21: Create and electronically deliver reports required by statute, such as tax deposit reports and tax statement releases, by the statutory deadlines.

Business Information Technology Requirement Matrix

The following chart shows the relationship between the Enterprise Business Strategies and the Business Information Technology Requirements.

Relationship Between the RRB's Business Strategies And Business IT Requirements									
Business IT Requirements	**Business Strategies**								
	S-1	S-2	S-3	S-4	CS-1	CS-2	CS-3	CS-4	CS-5
BITR-1	X				X			X	
BITR-2					X				
BITR-3						X			
BITR-4	X					X	X	X	
BITR-5	X								
BITR-6	X	X							
BITR-7		X							
BITR-8			X				X		
BITR-9	X								
BITR-10						X			X
BITR-11						X			
BITR-12				X					
BITR-13		X				X			
BITR-14								X	
BITR-15		X						X	X
BITR-16		X						X	
BITR-17		X		X				X	
BITR-18		X						X	X
BITR-19		X							
BITR-20	X				X				
BITR-21		X						X	X

S-1 Safeguard our customers' trust funds; S-2 Provide the most effective and efficient alignment of business and information technology resources to the mission; S-3 Use, build and maintain the most professional, productive, innovative and diverse workforce; S-4 Use outside sources and partnerships, when appropriate, to best accomplish our mission; CS-1 Pay benefits accurately and timely; CS-2 Provide a range of choices in service delivery methods; CS-3 Deliver service at the point-of-contact ("one and done"); CS-4 Provide relevant, timely and accurate information that is easy to understand; CS-5 Provide a level of service that meets or exceeds what customers can receive from other governmental and private entities.



Requirements for Technical Architecture

Requirements for Technical Architecture are the structural and functional requirements of the architecture required to enable implementation of the Business Information Requirements. The technical architecture is intended to deal with only the abstract views of the Business Information Requirements. The Technical Architecture does not cover details of the actual physical implementations of any of them (that is the area of the Physical Context). Questions asked at this level include:

- Describe the capabilities technology must provide to achieve business strategies?
- What technology infrastructure is needed to:
  - Provide the information needed (information type)
  - To the people that need it (access)
  - When they need it (frequency)
  - From wherever it comes (integration)

Given the Enterprise Business Strategies and resulting Business Information Requirements described earlier, the following are the technical architecture requirements necessary to achieve these goals.

TA Requirement 1: ***Consolidation*** – IT shall consolidate dependent information across lines of business, such as annuitant, claimant and employee, employer name, and address.

TA Requirement 2: ***Integration*** – IT shall integrate voice, data, video, and other multi-media representations of information across lines of business.

TA Requirement 3: ***End-to-end connectivity*** – IT shall enable staff to be able to communicate with each other and to access all enterprise information technology tools, data, and systems from their desktop or laptop at work or from home. This entails a truly global network and global workgroup-processing environment.

TA Requirement 4: ***Manageability*** – IT shall implement a new modernized environment that can work in an era of shrinking budgets. Accordingly, the EWTA should provide an environment that can be managed effectively with fewer resources.

TA Requirement 5: ***Security*** -- The RRB's information resources require strong built-in protections from internal and external threats while providing ease of access. IT shall create a

new environment to provide multiple levels of security to ensure the integrity of all IT components.

TA Requirement 6: ***Accessibility*** – IT shall make meaningful information readily accessible to RRB's staff, beneficiaries and employers, regardless of location or time of day.

TA Requirement 7: ***Interoperability*** **–** IT shall securely extend our network and application access to our customers and other government agencies with whom we do business.

TA Requirement 8: ***Integrity*** – IT shall assess the integrity of the benefit programs through comprehensive and integrated monitoring and prevention programs.

TA Requirement 9: ***Consistency*** – IT must enable that applications display a high degree of consistency and must be very easy to use for both the casual and high-volume customers without memorization of commands.

TA Requirement 10: ***Modulization*** **–** In the development of automated processes, IT shall 1.) analyze processes for common functions with other systems/processes, and 2.) integrate the common functions through the development of common process modules. The goal is to prevent redundancy, and reduce maintenance and subsequent adaptation of the processes.

TA Requirement 11: ***Collection and Delivery of Information*** **-** IT shall allow systems to collect and deliver information electronically, to those who need and can accept the information electronically, customized for each user that are timely, customer-service and performance focused and contain reliable data.

TA Requirement 12: ***Reliability*** **–** IT shall ensure that the RRB's systems have adequately functioning hardware to ensure system availability to its employees and customers. In addition, legacy benefit payment systems and databases should be improved to avoid problems and increase efficiencies, e.g. for more accurate benefit component accounting.

TA Requirement 13: ***Compatibility*** **–** IT shall ensure all software and hardware is current and compatible with one another.

Technical Architecture Requirement Matrix

The following matrix relates the Technical Architecture Requirements with the Business Information Technology Requirements. The matrix acts as a quality check to make sure for each business information driver, the Technical Architecture Requirements is substantiated.

Relationship Between the RRB's Technical Architecture Requirements And Business IT Requirements													
Business IT Requirements	**Technical Architecture Requirements**												
	TAR-1	TAR-2	TAR-3	TAR-4	TAR-5	TAR-6	TAR-7	TAR-8	TAR-9	TAR-10	TAR-11	TAR-12	TAR-13
BITR-1	X			X		X	X	X			X	X	
BITR-2	X			X				X				X	
BITR-3		X	X		X	X			X		X		
BITR-4	X			X	X	X	X				X	X	
BITR-5					X			X					
BITR-6	X							X					
BITR-7	X	X	X	X		X	X		X	X	X		X
BITR-8		X	X	X					X	X			X
BITR-9								X					
BITR-10		X									X		
BITR-11				X		X					X		
BITR-12				X									
BITR-13		X									X		
BITR-14	X			X							X		
BITR-15		X	X	X							X		
BITR-16		X	X	X	X						X		
BITR-17		X		X	X						X		
BITR-18		X		X	X						X		
BITR-19	X							X	X				
BITR-20								X					
BITR-21		X					X				X		

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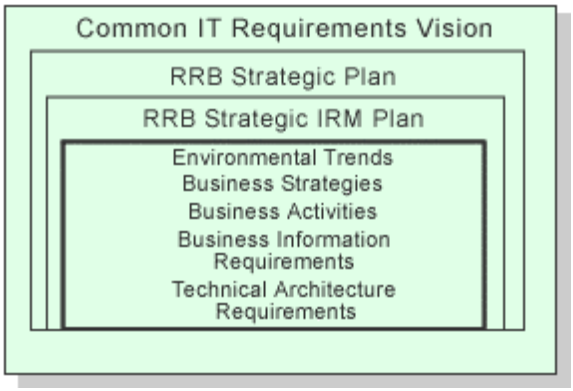
Conclusion

The biggest key to successful Common Requirements Vision effort is neither the accuracy of the analysis nor the comprehensiveness of business strategy, but rather the participation of business representatives working collaboratively with their Information Technology counterparts to define a logical and commonly understood set of requirements, validated against the strategic direction of the agency.



Endorsement

We, the members of the Executive Committee, do hereby endorse the Common Information Technology Requirements Vision of the Railroad Retirement Board's Enterprise Architecture on this day, Wednesday, July 25, 2001.

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Kenneth J. Zoll
Chief Enterprise Architect

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Steven A. Bartholow
Senior Executive Officer

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Kenneth P. Boehne
Chief Financial Officer

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B. V. Ferguson
Director of Programs

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Kenneth J. Zoll
Chief Information Officer

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Vacant
Director of Administration